

L5 ANSWER 43 OF 52 MEDLINE

DUPLICATE 10

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TITLE: Carbohydrate receptor-mediated gene transfer to human T leukaemic cells.

AUTHOR: Thurnher M; Wagner E; Clausen H; Mechtler K; Rusconi S; Dinter A; Birnstiel M L; Berger E G; Cotten M

CORPORATE SOURCE: Institute of Physiology, University of Zurich, Switzerland.

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AB The **mucin**-type carbohydrate Tn cryptantigen (GalNAc alpha 1-O-Ser/Thr, where GalNAc is N-acetyl-D-galactosamine) is expressed in many carcinomas, in haemopoietic disorders including the Tn syndrome, and on human immunodeficiency virus (HIV) coat glycoproteins, but is not expressed on normal, differentiated cells because of the expression of a Tn-processing galactosyltransferase. Using Jurkat T leukaemic cells which express high levels of Tn antigen due to deficient Tn galactosylation, we have established the Tn antigen-mediated gene transfer and demonstrate the considerable efficiency of this approach. We used poly(L-lysine) conjugates of the monoclonal antibody 1E3 directed against the Tn antigen to deliver the luciferase and beta-galactosidase reporter genes to Jurkat cells by receptor-mediated endocytosis. Addition of unconjugated 1E3 reduced transfection efficiency in a concentration-dependent manner and incubation with free GalNAc abolished DNA transfer completely, indicating that gene delivery is indeed mediated by the Tn antigen. Pre-treatment of Jurkat cells with Vibrio cholerae sialidase, which uncovers additional Tn antigens, resulted in an improvement of gene transfection. Both human and chicken adenovirus particles attached to the DNA/polylysine complex strongly augmented transgene expression. When the beta-galactosidase (lacZ) gene was delivered to Jurkat cells by Tn-mediated endocytosis, up to 60% of the cells were positive in the cytochemical stain using 5-bromo-4-chloro-3-indolyl-beta-D-galactopyranoside (X-gal) as a chromogenic substrate. The efficiency of the transferrin receptor-mediated DNA uptake into Jurkat cells was comparatively low, although these cells were shown to express considerable amounts of transferrin receptor. We show here that a **mucin**-type carbohydrate antigen mediates highly efficient DNA uptake by endocytosis into Jurkat T cells. This method represents a 50-fold improvement of Jurkat cell transfection efficiency over other physical gene transfer techniques. Specific gene delivery to primary cancer cells exhibiting Tn epitopes may especially be desirable in immunotherapy protocols.

(FILE 'HOME' ENTERED AT 08:38:18 ON 30 APR 2001)

FILE 'MEDLINE, CAPLUS, BIOSIS' ENTERED AT 08:41:20 ON 30 APR 2001

L1 175 S MUCIN (5A) (TRANSFORM? OR TRANSFECT? OR TRANSDUC?)
L2 20 S L1 AND DNA
L3 14 DUP REMOVE L2 (6 DUPLICATES REMOVED)

=> s mucin

L1 30278 MUCIN

=> s l1 and receptor

L2 2109 L1 AND RECEPTOR

=> s l2 and (bind or binding) and cell

L3 732 L2 AND (BIND OR BINDING) AND CELL

=> s l3 and (transfer? or transfect? or transform/)

'TRANSFORM/)' IS NOT A VALID FIELD CODE

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For a list of field codes for the current file, enter "HELP SFIELDS"
at an arrow prompt (=>).

=> s l3 and (transfer? or transfect? or transform)

L4 92 L3 AND (TRANSFER? OR TRANSFECT? OR TRANSFORM)

=> dup remove l4

PROCESSING COMPLETED FOR L4

L5 57 DUP REMOVE L4 (35 DUPLICATES REMOVED)

=> d ti

L5 ANSWER 1 OF 57 CAPLUS COPYRIGHT 2001 ACS

TI Hypoxia-related human genes and their encoded proteins and diagnostic and
therapeutic uses

=> s l5 and surface

L6 27 L5 AND SURFACE

=> d ibib.abs 1-27

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1	1420	mucin	USPAT	2001/04/30 09:35
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3	387	(mucin and (DNA or RNA or biomolecule?)) and (transfect\$ or transform\$ or tranfer\$)	USPAT	2001/03/01 12:55
4	3	mucin near (DNA or RNA or biomolecule?)	USPAT	2001/03/01 12:57
5	1005	mucin and (transform\$ or transfect\$ or transfer\$ or deliver\$)	USPAT	2001/03/01 13:00
6	75	(mucin and (transform\$ or transfect\$ or transfer\$ or deliver\$)) and gene adj1 therapy	USPAT	2001/03/01 13:00
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19	31	mucin adj10 (transfect\$ transform\$ transduc\$ transfer\$)	USPAT	2001/04/30 09:38